

REMARKS

This Amendment and Response is submitted in reply to the Office Action dated September 15, 2006, in which the Examiner issued the following rejections:

Claims 1-27 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite;

Claims 19, 20, 23 and 27 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application Publication No. 2003/0127030 to Cardin et al. in view of U.S. Patent Application Publication No. 2004/0011484 to Saviharju et al. and U.S. Patent No. 5,103743 to Berg;

Claims 1-5, 9-14 and 16-18 were rejected under 35 U.S.C. § 103(a) as obvious over Cardin in view of Saviharju, Berg, and U.S. Patent No. 5,678,494 to Ulrich;

Claims 6-8 and 15 were rejected under 35 U.S.C. § 103(a) as obvious over Cardin in view of Saviharju, Berg, Ulrich and U.S. Patent No. 4,627,173 to O'Hagan et al.;

Claims 24 and 25 were rejected under 35 U.S.C. § 103(a) as obvious over Cardin in view of Saviharju, Berg, and O'Hagan;

Claims 21 and 22 were rejected under 35 U.S.C. § 103(a) as obvious over Cardin in view of Saviharju, Berg and U.S. Patent No. 4,229,183 to Enerothe et al.; and

Claim 26 was rejected under 35 U.S.C. § 103(a) as obvious over Cardin in view of Saviharju, Berg and PCT Publication No. WO 00/43468.

Applicant respectfully traverses the rejections below. Claims 1-27 are currently pending. The current Amendment amends claims 1-6, 8, 9, 11, 13-19 and 23-25. Claims 1, 9 and 19 are independent claims.

Claims 1-27 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite, for various reasons. Applicant has amended the claims to address

the Examiner's particular reasons, as follows (in the order the reasons were raised in the Office Action):

Claim 1 was amended to provide proper antecedent basis for terms "waste liquor", "cellulose pulp digestion liquor", "recovery boiler" and "flue gases";

Claims 1 and 9 were amended to eliminate any possible confusion about whether thermal energy, electric energy or both are produced;

Claim 4 was amended such that "soda recovery boiler steam" has proper antecedent basis, and the amendments to claim 1 provide proper antecedent basis for "soda recovery boiler" in claim 4;

Claims 1 and 4 have been amended to make it clear that neither claim requires *all* the fuel gas to be supplied to a particular destination;

Claim 8 has been amended to replace "solid fuel" with a term having proper antecedent basis in claim 1;

Claim 9 has been amended such that "wood material", "cooking liquor", "fibers", "soda recovery boiler", "cooking chemicals", "solid biogenic fuel", and "formed ash" have proper antecedent basis." The term "the digested wood material" has proper antecedence in the prior recitation "wood material used for pulp production is in part digested," and requires no amendment. The term "the fiber material" was replaced with "the separated fibers" and has proper antecedence in the prior recitation "separate fibers from each other";

Claim 11 was amended to provide proper antecedent basis for the term "forest";

Claim 14 was amended to provide proper antecedent basis for the term "flue gas" and to replace the terms "combustion chamber" and "actual heat recovery" with terms having proper antecedence in claim 9;

Claim 16 was amended to remove the exemplary claim language;

Claim 17 was amended to provide proper antecedent basis for "boiler water" and "combustion chamber";

Claim 18 was amended to provide proper antecedent basis for the term "lime sludge reburning kiln";

Claim 19 was amended to provide proper antecedent basis for the terms "recovery boiler" and "feed unit"; and

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Claim 23 was amended to depend from claim 20, such that the term "at least one of the dryers" finds proper antecedence in claim 20.

Applicant respectfully submits that Applicant's amendments and arguments have sufficiently addressed each and every reason advanced by the Examiner for the current indefiniteness rejections. Accordingly, Applicant respectfully requests that the rejection of claims 1-27 under 35 U.S.C. § 112, second paragraph, as indefinite, be withdrawn.

Regarding the various grounds of rejection of claims 1-27 under 35 U.S.C. § 103(a), a claim rejection under 35 U.S.C. § 103 Applicant is improper unless the Examiner establishes a *prima facie* case of obviousness. A *prima facie* case of obviousness is not established unless the Examiner demonstrates that each and every claim recitation is taught or suggested by the prior art references, either alone or in combination.

Applicant's independent claims 1, 9 and 19 include, in part, the following similar recitations (as amended to address the 35 U.S.C. § 112, rejections):

Claim 1: A process for production of energy in a pulp mill... wherein the biogenic fuel used is bark or other similar wood waste, which is dried to a moisture content below 30%, whereafter it is gasified to produce *a fuel gas that is fed, at least in part, into the soda recovery boiler*.

Claim 9: A process for producing energy in a sulfate pulp mill... wherein solid biogenic fuel is brought into a gaseous form, formed ash is separated, and *a significant proportion of the gas is burned in the same boiler* [the soda recovery boiler], equipped with heat recovery, as the concentrated liquor.

Claim 19: An apparatus for producing, from wood bark, *a biogenic fuel gas to be fed into a recovery boiler* of a pulp mill, the apparatus being connected to a feed unit of the recovery boiler....

Applicant notes that, in *every* ground of rejection, the Examiner appears to rely on the disclosure of Cardin to teach or suggest Applicant's independent claim recitations regarding the feeding of a fuel gas to a recovery boiler. For example, the Examiner states:

With respect to claim 19, Cardin discloses a draft airflow furnace that provides chemical recovery (Abstract) and steam generation (Fig. 1, item 40), *which the Examiner construes to be a recovery boiler* of a pulp mill with a feed unit to feed into the furnace fuel oil, natural gas, or other more easily ignited material.... (Office Action, pp. 4-5; emphasis added.)

And also:

With respect to claim 1, Cardin discloses a process for the production of thermal energy in a pulp mill (pg. 2, col. 2, ¶ 0020), according to which process the waste liquor of the cellulose pulp digestion liquor is concentrated, and this concentrated liquor is *burned in the recovery boiler* (pr. 2, col. 1, ¶ 0013 and pg. 1, col. 1, ¶ 0004) *in the presence of fuels* (pg. 3, col. 1, ¶ 0024).... (Office Action, p. 7; emphasis added.)

Applicant respectfully disagrees with the Examiner's interpretation of the teachings of Cardin, and submit that Cardin does not teach or suggest that recovery steam generator 40 is a "recovery boiler."

First, Applicant notes that "recovery boiler" is a term of art as applied to pulp mills, and does not apply to any mill component in which some type of recovery occurs. Referring to Applicant's Specification:

In connection with the sulfate process [a process for producing chemical pulp in a pulp mill – see earlier in the paragraph], this recovery unit is called "soda recovery boiler." The process is called soda recovery boiler process of Tomlinson process. (Specification, paragraph [0005].)

Thus, the term "recovery boiler" cannot properly be construed to include devices like Cardin's heat recovery steam generator 40, which is not a chemical recovery unit of any sort, much less a recovery unit which is a part of a soda recovery boiler, or Tomlinson, process. Instead, heat recovery steam generator 40 is apparently used to recover thermal energy from exhaust gases produced by the rotating kiln-type furnace 10. (See, e.g., Cardin, paragraph [0041].)

Second, Cardin does not teach that either the strong black liquor (SBL) or the combustion support fluid (CSF) are fed to the heat recovery steam generator 40. Instead, Cardin teaches that both these elements are supplied to (and burned in) the rotating kiln-type furnace 10 (which does not appear to be a "boiler" of any type, much less a "recovery boiler") via burner nozzle assembly 100, and *not* to the heat recovery steam generator 40. Therefore, even if the heat recovery steam generator 40 were improperly construed to be

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a “recovery boiler,” the steam generator 40 would still fail to teach or suggest a recovery boiler to which fuel gas is fed.

Thus, Cardin does not teach or suggests at least those recitations of Applicant’s independent claims concerning the feeding of a fuel gas to a recovery boiler. As every ground of rejection under 35 U.S.C. § 103(a) as unpatentable over Cardin (in view of various other references) appears to rely on the same faulty interpretation of the teachings of Cardin, Applicant respectfully submits that the rejections of independent claims 1, 9 and 19, and dependent claims 2-8, 10-18 and 20-27, are improper, and should be withdrawn.

Further regarding claim 1, which was rejected under 35 U.S.C. § 103(a) as unpatentable over Cardin in view of Saviharju, Berg, and Ulrich, the Examiner noted, “Saviharju and Berg do not disclose expressly the moisture content of the dried wood waste.” (Office Action, p. 7.) Applicant’s claim 1, on the other hand, recites that the bark or other similar wood waste is dried to a moisture content below 30% prior to gasification. To supply this deficiency, the Examiner looks to the teachings of Ulrich.

Applicant notes, however, that the teachings of Ulrich are not directed at the drying of bark or similar wood waste *for the purpose of subsequent gasification*. Rather, Ulrich teaches drying wood chips for *direct combustion* in a biomass-fueled furnace (suitable for use as a heat source in residential or commercial dwellings). (See, e.g., Ulrich, Abstract; col. 1, lines 6-9.) Thus, Ulrich is non-analogous art, as it is neither in the same field as the present invention, nor concerned with the same problem. Therefore, Ulrich is not available as prior art in support of a rejection under 35 U.S.C. § 103(a). (See MPEP 2141.01(a).)

Even if Ulrich were considered analogous art, there would be no motivation or suggestion to incorporate its teaching regarding a moisture content below 30% into the teachings of Cardin, Saviharju and Berg. Ulrich teaches that drying wood chips to about 30% moisture allows for an adiabatic flame temperature from 1600 to 1700 degrees Celsius, which is “...high enough to assume fast, complete oxidation of organics.” This advantage

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apparently relates to the efficient *burning* of the dried wood chips, and not to their subsequent *gasification*.

Moreover, Ulrich is largely concerned with drying the wood chips to a low moisture content because this allows a "broad turn-down ratio," which allows its furnace to burn wood chips efficiently at extremely low levels, eliminating the need for complex ignition processes. (See, Ulrich, col. 5, lines 27-40.) However, Ulrich expressly states that this need for low moisture content is inapplicable to large scale commercial operations, noting the following:

It is difficult to burn wet fuel at low rates, although it is done *as a matter of course* in large grate-bed commercial unit. (Ulrich, col. 6, lines 28-30.)

Therefore, Ulrich in addition to not teaching a low moisture content for the purpose of subsequent gasification, expressly downplays the need for a particularly low moisture content, at all, in commercial applications (in which category, Applicant would contend that pulp mill operations clearly fall).

Thus, Applicant submits that the rejection of claim 1 under 35 U.S.C. § 103(a) as unpatentable over Cardin in view of Saviharju, Berg, and Ulrich (and its dependent claims 2-8) is further improper for at least the above reasons, and should be withdrawn.

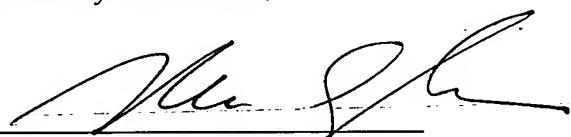
Having traversed or addressed each and every claim rejection, Applicant respectfully requests that the rejections of claims 1-27 be withdrawn, and claims 1-27 be passed to issue.

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Applicant respectfully submits that nothing in the current Amendment constitutes new matter. Amendments to the claims were made for clarity and/or conformity with current U.S. practice.

A check in the amount of \$1020.00, the 37 C.F.R. § 1.17(a)(3) fee for a three-month extension of time, is submitted herewith. Applicant believes no additional fees are due in connection with this Amendment and Response. If any additional fees are deemed necessary, authorization is hereby granted to charge any such fees to Deposit Account No. 13-0235.

Respectfully submitted,

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